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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/587,257	07/26/2006	Bardo Schmitt	292588US0PCT	6676
22850 7590 09/11/2007 OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER REDDY, KARUNA P	
			ART UNIT 1713	PAPER NUMBER
			NOTIFICATION DATE 09/11/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/587,257	<b>Applicant(s)</b> SCHMITT ET AL.	
	<b>Examiner</b> Karuna P. Reddy	<b>Art Unit</b> 1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-24 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 14-24 is/are rejected.
- 7) ☒ Claim(s) 3-6 and 13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>See Continuation Sheet</u> . | 6) <input type="checkbox"/> Other: ____  |

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :7/26/2006, 12/22/2006, 2/15/2007.

## DETAILED ACTION

1. Preliminary amendment filed on July 26, 2006 is made of record. Claims 1-24 are currently pending in the application.

### ***Double Patenting***

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a

nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 1-24 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-21 and 26-27 of copending Application No. 10/588,210.

Although the conflicting claims are not identical, they are not patentably distinct from each other because copending application has all the components (a) through (e) with (d) and (e) being optional components. Therefore, it would have been obvious to one skilled in the art at the time invention was made to use component (d) and (e) in the mixture for preparing transparent plastics, since the two components (d) and (e) are already contemplated in the copending application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

4. Claims 1, 7, 11-17 and 22-24 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over

claims 1, 7, 12, 14-19, 21 and 25-26 of copending Application No. 11/547,238 in view of Maruyama et al (US 5, 270, 439).

Although the conflicting claims are not identical, they are not patentably distinct from each other because copending application has all elements that are included in components (a) through (f) in the said proportions.

The copending application differs with respect to a prepolymer formed from polymethacrylate and polythiols instead of compounds I, II and polythiol.

However, Maruyama et al teaches a curable composition that may be prepared by previously synthesizing the prepolymer having a polythioether skeleton and mixing it with another polymerizable monomer (column 9, lines 26-29). The structure of the curable composition containing the prepolymer has a very good storage stability (column 12, lines 39-43) and is extremely stable without gelling, has substantially no elevation of the viscosity even when left to stand at room temperature for 20 hours or longer and the cured product obtained by curing the curable composition has a very good optical uniformity. Therefore, it would have been obvious to one skilled in the art at the time invention was made to prepolymerize (I), (II) and polythiols or dithiols, instead of forming a prepolymer of polymethacrylate and polythiol and obtain a polymerizable mixture that has good storage stability and good optical uniformity.

### ***Claim Objections***

5. Claims 3-6 are objected to because of the following informalities:

Claim 3 recites "... comprising the radical ...." and should read "...wherein the radical..." for the sake of clarity since a mention is already made of the radical R<sup>2</sup> in claim 1.

Claim 4 and 6 recite ".... of the formula (I), (II), and (I), (II) and compounds ...." and should read ".... of the formula (I), (II) and compounds....".

Claim 5 recites ".... of the formula (I) and (II), and (I), (II) and compounds ...." and should read ".... of the formula (I), (II) and compounds....".

Appropriate correction is required.

6. Claims 14-15 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The claim recites "...further comprising at least one ethylenically unsaturated monomer (B)." At least one ethylenically unsaturated monomer (B) is the same as component (e) of claim 1.

Claim 15 is dependent on claim 14.

### ***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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8. Claim 23 provides for the method of using the high transparency plastic as an optical lens, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a method of using without any active, positive steps delimiting how this method is actually practiced.
9. Claim 23 is rejected under 35 U.S.C. 101 because the claimed recitation of a method of using, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

### ***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

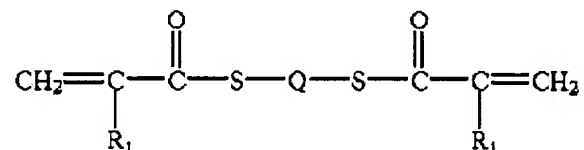


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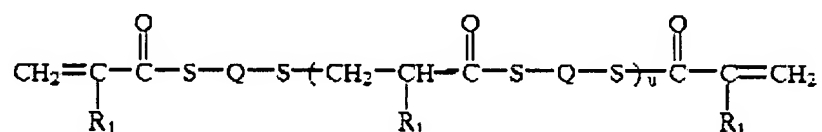
1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. Claims 1-12 and 14-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al (US 6, 342, 571 B1) in view of Maruyama et al (US 5, 270, 439).

Smith et al disclose a polymerizable composition comprising (a) a mixture of thio(meth)acrylate functional monomers comprising (i) a first thio(meth)acrylate functional monomer represented by the following general formula I –



in which R<sub>1</sub> is hydrogen or methyl, and Q is a divalent linking group selected from linear or branched C<sub>2</sub>-C<sub>12</sub> alkylene, C<sub>4</sub>-C<sub>12</sub> cyclic alkylene, C<sub>6</sub>-C<sub>14</sub> arylene and C<sub>7</sub>-C<sub>26</sub> alkarylene (column 2, lines 46-64); and (ii) a second thio(meth)acrylate functional monomer represented by the following general formula II –

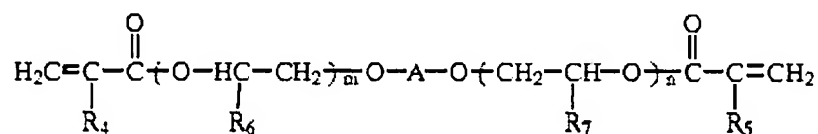


in which  $R_1$  and Q have the same meanings as described for monomer a(i) and "u" is an integer from 1 to 10 (column 3, lines 1-14); (b) an aromatic monomer having at least two vinyl groups; (c) a polythiol monomer having at least two thiol groups; and (d) a comonomer selected from (i) an anhydride monomer having at least one ethylenically unsaturated group; (ii) a monomer having at least three (meth)acryloyl groups (column 3, lines 15-24). Each monomer and comonomer is selected such that a polymerizate of said polymerizable composition has a refractive index of at least 1.57 and an Abbe number of at least 33 (column 3, lines 39-42). The first thio(meth)acrylate functional monomer is present in an amount from 5 percent by weight to 49 percent by weight based on total weight of the mixture of thio(meth)acrylate functional monomers (column 3, lines 59-65). The second thio(meth)acrylate functional monomer is typically present in an amount from 51 percent by weight to 95 percent by weight based on the total weight of the mixture of thio(meth)acrylate functional monomers (column 3, lines 66-67; column 4, lines 1-5). The mixture of thio(meth)acrylate functional monomers are typically present in the composition in an amount of at least 20 percent by weight based on the total monomer weight of the polymerizable composition (column 5, lines 63-67; column 6, line 1).

The composition also comprises an aromatic monomer exemplified by 1,2-divinyl benzene (column 6, lines 11-12). The aromatic monomer is typically present in the polymerizable composition in an amount of at least 5 percent by

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weight (column 6, lines 30-33). Also present in the composition is a polythiol monomer having at least two thiol groups (column 6, lines 59-60). The polythiol monomer is typically present in the composition in an amount of at least 5 percent by weight (column 7, lines 55-57). The composition further comprises a comonomer which may be selected from an anhydride monomer having at least one ethylenically unsaturated group (column 8, lines 1-4) and is typically present in an amount of at least 1% by weight (column 8, lines 35-36). The polymerizable composition may optionally further comprise a radically polymerizable comonomer represented by the general formula (column 8, lines 47-60) and is present in amount of at least 2 percent by weight -



The polymerizable composition may further optionally comprise a monomer having a single ethylenically unsaturated radically polymerizable group exemplified by 2-hydroxyethyl methacrylate and styrene (column 11, lines 10-26). In an embodiment, the polymerizable composition comprises 20 percent by weight to 80 percent by weight of the thio(meth)acrylate monomer mixture, from 5 percent by weight to 45 percent of the polythiol monomer (column 11, lines 38-43).

Polymerizates obtained from polymerization of the composition will be solid and preferably transparent e.g. suitable for optical applications. Solid

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articles that may be prepared include optical lenses (column 13, lines 36-46).

See table 2 for refractive index, Abbe number and %transmittance.

The prior art differs with respect to

- a) the formation of prepolymer (a) from (I), (II) and alkyl dithiols or polythiols and silent with respect to plastic having  $T_g$  greater than  $80.0^{\circ}\text{C}$ .
- b) average diameter of a ball that does not damage the specimen being  $\geq 18$ .

With respect to a), Maruyama et al teaches a curable composition suitable for the preparation of a cured product having various well-balanced properties such as optical uniformity and low water absorption and heat resistance (column 2, lines 41-46). The curable composition of the present invention may be prepared by previously synthesizing the prepolymer having a polythioether skeleton and mixing it with another polymerizable monomer (column 9, lines 26-29). **The structure of the curable composition containing the prepolymer** having a polythiol skeleton thus obtained has molecular terminal ends in the composition capped with polymerizable vinyl groups and **has a very good storage stability** (column 12, lines 39-43). **The curable composition**, different from a composition comprising a mere mixture of thioether, a polythiol and another polymerizable monomer, which has the problems of poor stability and homogeneity of the cured product, **is extremely stable without gelling, has substantially no elevation of the viscosity even when left to stand at room**

**temperature for 20 hours or longer and the cured product obtained by curing the curable composition has a very good optical uniformity.** See table 9, wherein the glass transition temperature is  $\geq 80^{\circ}\text{C}$ . Therefore, it would have been obvious to one skilled in the art at the time invention was made to prepolymerize (I), (II) and alkyl dithiols or polythiols and obtain a polymerizable mixture that has good storage stability and a cured product having good optical uniformity with a glass transition temperature  $\geq 80^{\circ}\text{C}$ .

With respect to b) average diameter of a ball that does not damage a specimen in the falling ball test is  $\geq 18$ , is an inherent property of plastic obtained by curing the polymerizable mixture of Smith et al in view of Maruyama et al.

### ***Allowable Subject Matter***

13. Claim 13 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karuna P. Reddy whose telephone number is (571) 272-6566.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (571) 272-1114. The fax

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phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Karuna P Reddy  
Examiner  
Art Unit 1713

/KR/



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SUPERVISORY PATENT EXAMINER  
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